FINAL

Office of River Protection
Consent Decree 2:08-CV-5085-RMP (2016)

Monthly Summary Report

April 2016

Office of River Protection

Consent Decree 08-5085-FVS and Consent Decree 2:08-CV-5085-RMP

Monthly Summary Report – April 2016

Project Earned Value Management System reflects February 2016 information

CD Milestone Statistics/Status

Milestone	Title	Due Date	Completion Date	Status
Fiscal Year 2020				
D-00A-07 Interim	LAW Facility Construction Substantially Complete	12/31/2020		On Schedule
D-16B-03*	Of the 12 SSTs referred to in B-1 and B-2, complete retrieval of tank waste in at least 5.	12/31/2020		On Schedule
Fiscal Year 2022				
D-00A-08 Interim	Start LAW Facility Cold Commissioning	12/31/2022		On Schedule
Fiscal Year 2023				
D-00A-09 Interim	LAW Facility Hot Commissioning Complete	12/31/2023		On Schedule
Fiscal Year 2024				
D-16B-01*	Complete Retrieval of Tank Waste from the following remaining SSTs in WMA-C: C-102, C-105 and C-111	3/31/2024		On Schedule
D-16B-02*	Complete retrieval of tank wastes from the following SSTs in Tank Farms A and AX: A-101, A-102, A-104, A-105, A-106. AX-101, AX-102, AX-103, and AX-104. Subject to the requirements of Section IV-B-3 DOE may substitute any of the identified 9 SSTs and advice Ecology accordingly.	3/31/2024		On Schedule
Fiscal Year 2030				
D-00A-02 Interim	HLW Facility Construction Substantially Complete	12/31/2030		On Schedule
Fiscal Year 2031				
D-00A-13 Interim	Complete Installation of Pretreatment Feed Separation Vessels	12/31/2031		On Schedule
D-00A-14 Interim	PT Facility Construction Substantially Complete	12/31/2031		On Schedule

Milestone	Title	Due Date	Completion Date	Status
D-00A-19 Interim	Complete Elevation 98 feet Concrete Floor Slab Placements in PT Facility	12/31/2031		On Schedule
Fiscal Year 2032				
D-00A-03 Interim	Start HLW Facility Cold Commissioning	06/30/2032		On Schedule
D-00A-06 Interim	Complete Methods Validations	06/30/2032		On Schedule
D-00A-15 Interim	Start PT Facility Cold Commissioning	12/31/2032		On Schedule
Fiscal Year 2033				
D-00A-04 Interim	HLW Facility Hot Commissioning Complete	12/31/2033		On Schedule
D-00A-16 Interim	PT Facility Hot Commissioning Complete	12/31/2033		On Schedule
D-00A-17	Hot Start of Waste Treatment Plant	12/31/2033		On Schedule
Fiscal Year 2036				
D-00A-01	Achieve Initial Plant Operations for the Waste Treatment Plan	12/31/2036		On Schedule

* Milestones B-1, B-2, and B-3 narrative changed in accordance with 2016 amended Consent Decree (CD). Per this amendment, there is no longer a milestone B-4.

CD = Consent Decree.
DOE = Department of Energy
Ecology = Washington State Department of Ecology
HLW = high-level waste.
LAW = low-activity waste.
PT = pretreatment.
SST = single-shell tank.
WMA-C = C Farm waste management area.

Consent Decree Reports/Reviews

D-16C-03 series, Submit to State of Washington and State of Oregon Quarterly Report, Due: TBD, Status: On Schedule.
In accordance with the 2016 Amended Consent Decree, DOE will provide Quarterly instead of semiannual reports.
The January 2016 Semiannual Report was issued on January 29, 2016, via U.S. Department of Energy (DOE), Office of River Protection (ORP) letter 16-ECD-0006, "January 2016 Semi-Annual Report for State of Washington vs. U.S. Department of Energy, Case No. 08-5085-FVS, for Waste Treatment and Immobilization Plant Construction and Startup Activities and Tank Retrieval Activities – May 1, 2015, thorough October 31, 2015."

D-00C-02 series, Submit to State of Washington and State of Oregon Monthly Summary Reports, Due: End of each month, Status: On Schedule.

D-006-00-B1, Provide State of Oregon notice of meetings in D-006-00-B, etc. no less than 30 days before they are scheduled, Due: September 25, 2016, Status: On Schedule.

D-006-00-B, Meet Approximately Every Three Years after Entry of Decree to review requirements of the Consent Decree, Due: October 25, 2016, Status: On Schedule.

Spare Reboiler Requirement Status

Milestone	Title	Due Date	Status
D-16E-01	DOE must purchase by December 31, 2016 a spare A-E-1 reboiler for the 242-A Evaporator*	12/31/2016	On Schedule
D-16E-02	Have available spare A-E-1 reboiler for the 242-A Evaporator*	12/31/2018	On Schedule

*CD 08-5085-FVS, Part IV B.5 as amended by No. 2:08-CV-5085-RMP dated April 12, 2016

Description of activity and progress made for the spare A-E-1 reboiler for the 242-A Evaporator:

- Since issuance of the March 11, 2016 amended consent order, DOE has provided the contractor with funding to accelerate the planned FY 2017 work to design and procure the spare A-E-1 reboiler. ORP authorized Washington River Protection Solutions (WRPS) to proceed by awarding a not-to-exceed (NTE) contract action. The contractor is currently underway generating a procurement specification for the new spare 242-A Evaporator reboiler. The current procurement strategy is to award a design/build procurement contract with a vendor by November 20, 2016.
- Current efforts include the generation of a functions and requirements evaluation document (FRED) as well as a failure mode and effects analysis (FMEA) document. An expression of interest is being submitted Tuesday, April 19 to solicit responses from NQA-1, ASME Section 8 design and build fabrication vendors.
- There is no cost and schedule performance data to report from February 2016, but DOE will provide such information when it becomes available.

Single-Shell Tank Retrieval Program

Milestone	Title	Due Date	Status
D-16B-03	Of the 12 SSTs referred to in B-1 and B-2, complete retrieval of tank waste in at least 5.	12/31/2020*	On Schedule
D-16B-01	Complete retrieval of tank waste from the following remaining SSTs in WMA-C: C-102, C-105 and C-111	3/31/2024	On Schedule
D-16B-02	Complete retrieval of tank wastes from the following SSTs in Tank Farms A and AX: A-101, A-102, A-104, A-105, A-106, AX-101, AX-102, AX-103, and AX-104. Subject to the requirements of Section IV-B-3 DOE may substitute any of the identified 9 SSTs and advice Ecology accordingly.	3/31/2024	On Schedule

* Pursuant to Section IV-B-~~5~~ 7 of the Consent Decree, the U.S. Department of Energy (DOE) must submit to the Washington State Department of Ecology (Ecology) a written certification that DOE has completed retrieval of a tank in accordance with the requirements of Appendix C, Part 1, of the Consent Decree.

DOE = Department of Energy
SST = single shell tank
WMA-C = C Farm waste management area.

Significant Accomplishments during the Prior Three Months:

- Completed post retrieval samples of Tank C-102.
- Obtained Tank 241-C-105 in-process sample.
- Retrieved waste from Tank 241-C-105 utilizing the Mobile Arm Retrieval System – Vacuum (MARS-V) and high-pressure water to a remaining volume of 67,300 gallons.
- Started preparations for equipment removal of the Tank C-105 MARS-V, to ready tank for modification to modified sluicing system.
- Completed three retrieval technologies to their limits at Tank 241-C-111.
- Completed Tank 241-AX-102 cover block removal.
- Initiated pit cleanout of Tank AX-102, 02A pit.

Significant Planned Activities in the Next Three Months:

- Complete A/AX infrastructure (water and utilities) design – fiscal year (FY) 2015 Phase 4A and Phase 5.
- Complete AX Farm field work for tower, stack extension, and platform installation.
- Complete equipment removal/disposal at Tank AX-101 pit and riser.
- Complete AX-2707 fencing and gate upgrades
- Complete AX ventilation installation, testing and startup at portable exhauster (POR) 126.
- Complete building AX-2707 and building AX-80 removal and disposal
- Obtain TWRWP modification approval for Tank C-105 third retrieval technology
- Negotiate contract proposal for installing and performing the third retrieval technology at Tank C-105.

Tank Waste Retrieval Work Plan Status

Tank	TWRWP	Expected Revisions	First Retrieval Technology	Second Technology	Third Technology
C-101	RPP-22520, Rev. 8	Complete	Modified Sluicing with ERSS	High-Pressure Water deployed with the ERSS	-
C-102	RPP-22393, Rev. 7	Complete	Modified Sluicing with ERSS	High-Pressure Water deployed with the ERSS	-
C-104	RPP-22393, Rev. 7	Complete	Modified Sluicing	Chemical Retrieval Process complete per 13-TF-0018	-
C-105	RPP-22520, Rev. 8	Third Technology	MARS-V	MARS-V-High Pressure Water Spray	TBD
C-107	RPP-22393, Rev. 7	Complete	MARS-S	MARS-S-High Pressure Water Spray	Water Dissolution
C-108	RPP-22393, Rev. 7	Complete	Modified Sluicing	Chemical Retrieval Process complete per 13-TF-0025	-
C-109	RPP-21895, Rev. 5	Complete	Modified Sluicing	Chemical Retrieval Process complete per 13-TF-0037	-
C-110	RPP-33116, Rev. 3	Complete	Modified Sluicing	Mechanical Waste Conditioning with an In-Tank Vehicle	High Pressure Water
C-111	RPP-37739, Rev. 2	Complete	Modified Sluicing	High pressure water using the ERSS	Chemical Dissolution Process with ERSS
C-112	RPP-22393, Rev. 7	Complete	Modified Sluicing	Chemical Retrieval Process	-

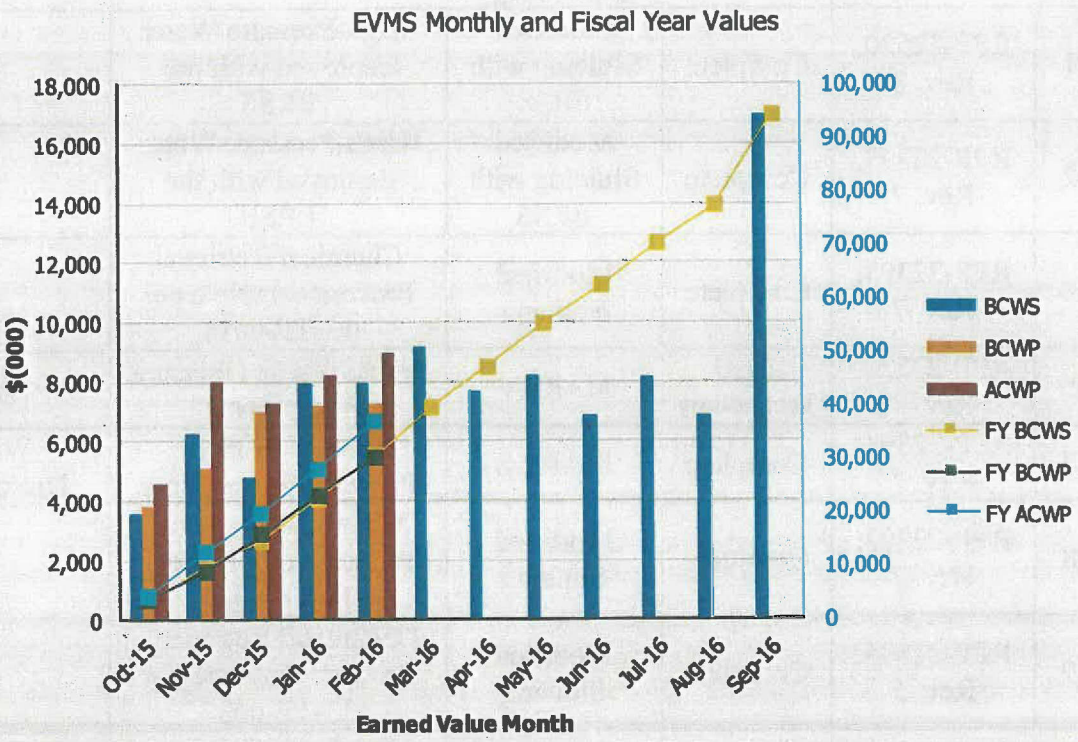
ERSS = extended reach sluicing system.
MARS = Mobile Arm Retrieval System.
S = sluicing.
TBD = to be determined.
TWRWP = Tank Waste Retrieval Work Plan.
V = vacuum.

Significant Planned Activities in the Next Three Months:

- Finalize AX Farm tank waste retrieval work plans.
- Modify RPP-22520 *241-C-101 and 241-C-105 Tanks Waste Retrieval Work Plan* (C-105 TWRWP) to include a third technology for Tank C-105 retrieval

Earned Value Data: Fiscal Year 2016 February-16

Tank Farms ORP-0014
Retrieve and Close SST's 5.02



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$3,557	$3,814	$4,560	1.07	0.84	$3,557	$3,814	$4,560	1.07	0.84
Nov 2015	$6,282	$5,131	$8,006	0.82	0.64	$9,839	$8,946	$12,566	0.91	0.71
Dec 2015	$4,769	$6,970	$7,255	1.46	0.96	$14,608	$15,915	$19,821	1.09	0.80
Jan 2016	$7,914	$7,214	$8,233	0.91	0.88	$22,522	$23,130	$28,053	1.03	0.82
Feb 2016	$7,948	$7,288	$8,959	0.92	0.81	$30,470	$30,417	$37,012	1.00	0.82
Mar 2016	$9,130					$39,600				
Apr 2016	$7,648					$47,248				
May 2016	$8,210					$55,458				
Jun 2016	$6,890					$62,348				
Jul 2016	$8,126					$70,474				
Aug 2016	$6,834					$77,307				
Sep 2016	$16,966					$94,273				
CTD	$622,948	$615,644	$646,984	0.99	0.95					

ACWP = actual cost of work performed.
BCWP = budgeted cost of work performed.
BCWS = budgeted cost of work scheduled.
CPI = cost performance index.
CTD = contract to date.
EVMS = earned value management system.
FY = fiscal year.
SPI = schedule performance index.

Retrieve and Close Single-Shell Tanks

The current month unfavorable schedule variance (SV) of ($660K) is due to:

- AX Farm procurements (extended reach sluicer system [ERSS], demister water supply) were re-prioritized due to funding/budget constraints related to higher tank farm priorities (AY-102, C-105 and C-111). Material and equipment were re-sequenced based on priority, lead time and field installation.

The current month unfavorable cost variance (CV) of ($1,671K) is due to:

- Additional duration and resources have been required to complete AX Farm ventilation installation activities due to impacts associated with the use of self-contained breathing apparatus (SCBA) and higher than expected soil contamination levels.

Waste Treatment and Immobilization Plant Project

Milestone	Title	Due Date	Status
D-00A-06	Complete Methods Validations	6/30/2032	On Schedule
D-00A-17	Hot Start of Waste Treatment Plant	12/31/2033	On Schedule
D-00A-01	Achieve Initial Plant Operations for WTP	12/31/2036	On Schedule

WTP = Waste Treatment and Immobilization Plant

The Waste Treatment and Immobilization Plant (WTP) Project currently employs approximately 3117 full-time equivalent contractor (Bechtel National, Inc. [BNI]) and subcontractor personnel. This includes 552 craft, 447 non-manual, and 140 subcontractor full-time equivalent personnel working at the WTP construction site (all facilities).

In October 2012, the percent-complete values for the Pretreatment (PT) and High-Level Waste (HLW) facilities were frozen at the September 2012 rate. Construction, procurement, and production engineering activities were placed on hold for the PT Facility and significantly slowed down for the HLW Facility. In August 2014, the U.S. Department of Energy (DOE) approved continuation of production engineering activities for HLW. Subsequently, DOE has approved the fiscal year (FY) 2015 and FY 2016 2-Year Interim Work Plan. In April 2015, a 3-Year Interim Work Plan for the PT Facility was implemented emphasizing prioritization of technical issue resolution activities. The WTP Project is focused on resolving the PT Facility technical issues and finalizing the HLW Facility design.

The WTP Project continues to focus on completion of the Low-Activity Waste (LAW) Facility, Analytical Laboratory (LAB), and Balance of Facilities (BOF) (collectively known as LBL, including LBL facility services). As of February 2016, LBL facilities were 48 percent complete, design and engineering was 74 percent complete, procurement was 69 percent complete, construction was 74 percent complete, and startup and commissioning was 9 percent complete.

In February 2016, the cumulative to-date WTP Project schedule variance was a negative $21.3 million, and the cumulative to-date WTP Project cost variance was a positive $61.9 million. The cumulative to-date cost and schedule variance is based on the progress of the LBL internal forecast.

The following is the project status through the end of February 2016.

Significant Accomplishments during the Prior Three Months:

- DOE Office of River Protection (ORP) received the draft WTP Criticality Safety Evaluation Report (CSER) – (PT)
- Began installing pulse-jet mixers (PJM) in vessel at Greenberry Industrial, Inc. – (PT)
- Received the thermal catalytic oxidizer (TCO) and ammonia dilution skid (ADS) – (LAW)

- Melter lid 1 was successfully flipped – (LAW)
- ORP approved the Preliminary Documented Safety Analysis (PDSA) for the Effluent Management Facility (EMF) – (BOF)
- PDSA change package for radioactive liquid waste disposal (RLD) vessels 7 and 8 has been approved by DOE – (HLW)
- Approved Mississippi State University's NQA-1 quality assurance program for the high-efficiency particulate air (HEPA) filter testing – (HLW)
- Completed installation of Wet Electrostatic Precipitator (WESP) electrode assemblies in one vessel – (LAW)
- Completed TCO and ADS functional test – (LAW)
- Completed installation of the mud mat for the EMF processing, electrical and utility buildings – (BOF).

Significant Planned Activities in the Next Three Months:

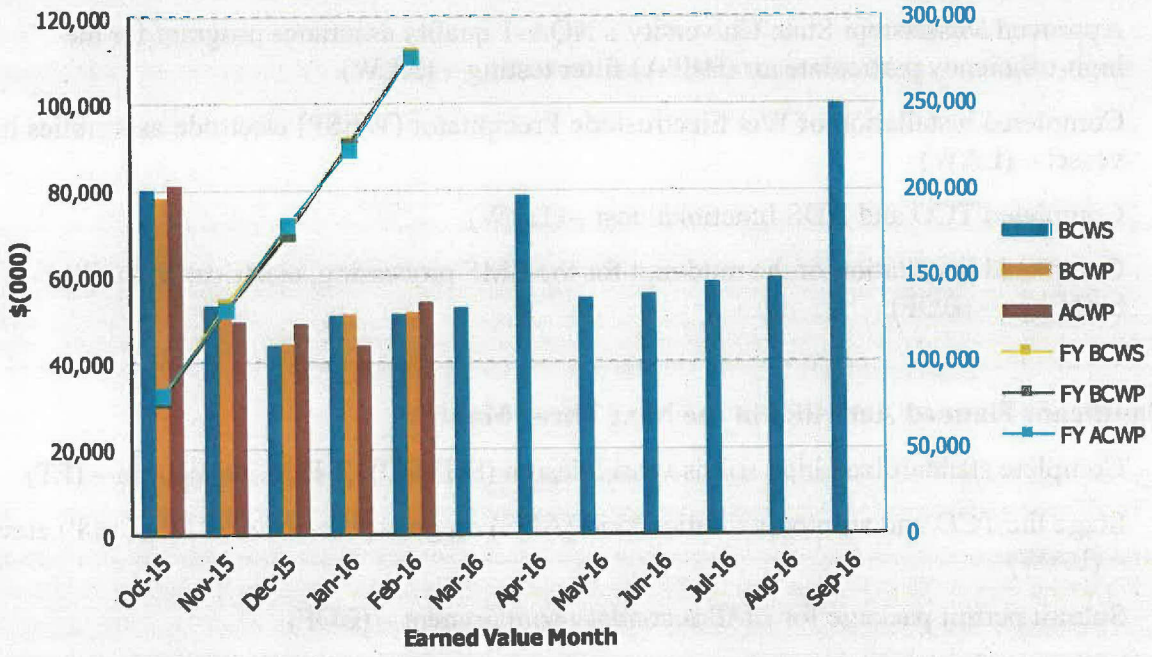
- Complete standardized high solids vessel design (SHSVD) -T PJM installation – (PT)
- Stage the TCO and ammonia dilution skid (ADS) on greater than the 48 foot (+48') elevation – (LAW)
- Submit permit package for EMF secondary containment – (BOF)
- Transmit final Hydrogen in Piping and Ancillary Vessels (HPAV) Preliminary Documented Safety Analysis (PDSA) change package to ORP for approval pending comment resolution – (PT)
- Issue Phase 1 of the high-level waste (HLW) melter off-gas treatment process/process vessel vent engineering study – (HLW)
- Issue the radioactive waste handling system, decontamination handling system, and melter cave support handling system engineering studies – (HLW)
- Place second melter lid castable refractor – (LAW)

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data Data as of: February 2016

Waste Treatment Plant (WTP) Project

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$79,800	$78,230	$81,000	0.98	0.97	$79,800	$78,230	$81,000	0.98	0.97
Nov 2015	$52,815	$51,614	$49,184	0.98	1.05	$132,615	$129,844	$130,184	0.98	1.00
Dec 2015	$43,659	$44,505	$48,853	1.02	0.91	$176,275	$174,348	$179,037	0.99	0.97
Jan 2016	$50,515	$51,167	$43,662	1.01	1.17	$226,790	$225,515	$222,699	0.99	1.01
Feb 2016	$51,349	$51,492	$54,112	1.00	0.95	$278,139	$277,007	$276,811	1.00	1.00
Mar 2016	$52,408									
Apr 2016	$78,790									
May 2016	$54,822									
Jun 2016	$55,908									
Jul 2016	$58,359									
Aug 2016	$59,582									
Sep 2016	$99,872									
PTD	$9,377,902	$9,356,554	$9,294,613	1.00	1.01					

ACWP = actual cost of work performed.
BCWP = budgeted cost of work performed.
BCWS = budgeted cost of work scheduled.
CPI = cost performance index.
CTD = contract to date.
EVMS = earned value management system.
FY = fiscal year.
SPI = schedule performance index.

Pretreatment Facility

Milestone	Title	Due Date	Status
D-00A-19	Complete Elevation 98' Concrete Floor Slab in PT Facility	12/31/2031	On Schedule
D-00A-13	Complete Installation of Pretreatment Feed Separation Vessels	12/31/2031	On Schedule
D-00A-14	PT Facility Construction Substantially Complete	12/31/2031	On Schedule
D-00A-15	Start PT Facility Cold Commissioning	12/31/2032	On Schedule
D-00A-16	PT Facility Hot Commissioning Complete	12/31/2033	On Schedule

PT = pretreatment

The Pretreatment (PT) Facility will separate radioactive tank waste into high-level waste (HLW) and low-activity waste (LAW) fractions, and transfer each waste type to the respective vitrification facility for immobilization. As of September 2012, the PT Facility was 56 percent complete overall, with engineering design 85 percent complete, procurement 56 percent complete, construction 43 percent complete, and startup and commissioning 3 percent complete. Construction, procurement, and production engineering activities remain on hold, resulting in no change to the percent-complete status since September 2012. Bechtel National, Inc. (BNI) and U.S. Department of Energy (DOE) continue to focus on resolving technical issues, performing hazards analyses, and completing safety evaluations for process systems in accordance with the revised PT Facility 3-year Interim Work Plan

BNI has submitted resolution plans for eight technical issues: T1, Hydrogen in Vessels; T2, Criticality; T3, Hydrogen in Piping and Ancillary Vessels (HPAV); T4, Mixing; T5, Erosion Corrosion; T6, PT Facility Optimization; T7, Vessel Analysis; and T8, Ventilation. Phase 1 of the full-scale vessel testing is continuing for the pulse jet mixers (PJM) controls utilizing the radioactive liquid waste disposal (RLD) 8T vessel. Technical review teams continue to evaluate open PT Facility technical issues. An evaluation is ongoing relative to a standardized design for high-solids vessels within the PT Facility. With primary emphasis on design and fabrication of hold point releases supporting procurement, fabrication, and delivery of the standardized high solids vessel design (SHSVD)-T16ft vessel.

Significant Accomplishments during the Prior Three Months:

- DOE Office of River Protection (ORP) received draft Waste Treatment and Immobilization Plant (WTP) Criticality Safety Evaluation Report (CSER)
- Began installing PJMs in vessel at Greenberry Industrial, Inc.

- Energy*Solutions* completed PJM level instrument test at Energy*Solutions* Engineering Laboratory (ESEL)
- Issued chemistry study for testing SHSVD-T
- Draft HPAV Preliminary Documented Safety Analysis (PDSA) change package for ORP comments

Significant Planned Activities in the Next Three Months:

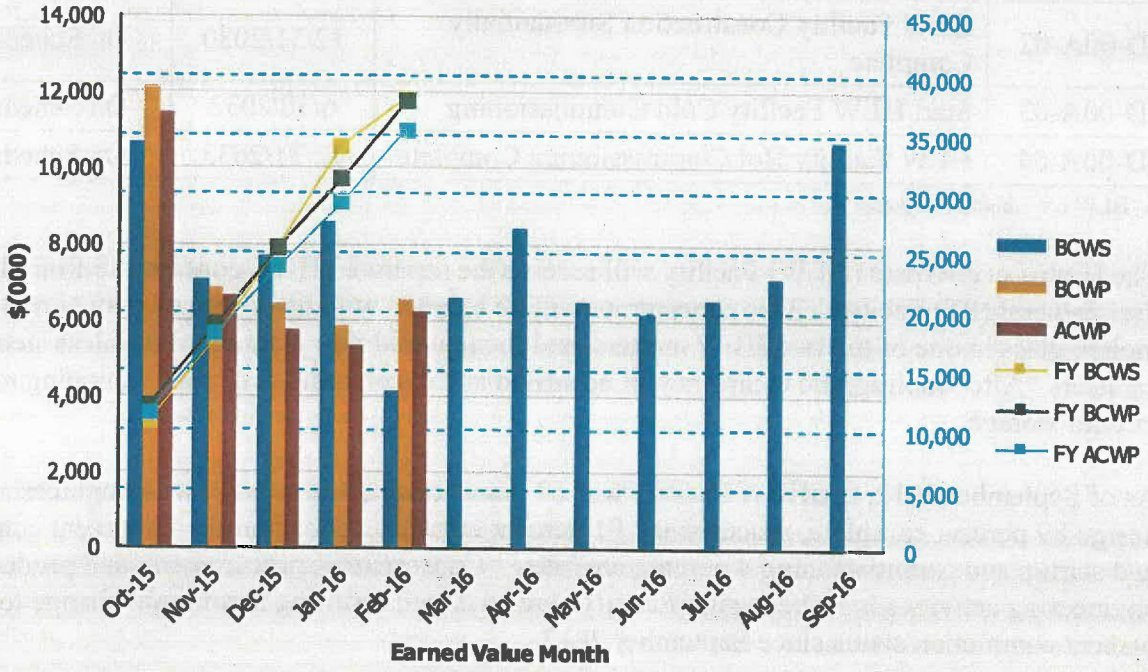
- Transmit final HPAV PDSA change package to ORP for approval pending comment resolution
- Complete SHSVD-T PJM installation
- Weld SHSVD-T top head to body
- Finalize erosion / corrosion simulant for one-quarter scale jet impingement and pipe loop testing
- Issue SHSVD Design Verification Guide
- Complete sliding bed evaluation reports and transmit to ORP for review
- Update T5 plan, cost and schedule as a result of an erosion/corrosion workshop

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data Data as of: February 2016

River Protection Project
Pretreatment Facility (WBS 1.01)

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$10,667	$12,155	$11,441	1.14	1.06	$10,667	$12,155	$11,441	1.14	1.06
Nov 2015	$7,074	$6,836	$6,648	0.97	1.03	$17,741	$18,991	$18,089	1.07	1.05
Dec 2015	$7,678	$6,441	$5,777	0.84	1.11	$25,419	$25,432	$23,867	1.00	1.07
Jan 2016	$8,595	$5,853	$5,332	0.68	1.10	$34,014	$31,285	$29,199	0.92	1.07
Feb 2016	$4,105	$6,545	$6,220	1.59	1.05	$38,120	$37,830	$35,419	0.99	1.07
Mar 2016	$6,588									
Apr 2016	$8,413									
May 2016	$6,469									
Jun 2016	$6,197									
Jul 2016	$6,558									
Aug 2016	$7,127									
Sep 2016	$10,732									
PTD	$1,770,520	$1,769,662	$1,747,978	1.00	1.01					

ACWP = actual cost of work performed.
BCWP = budgeted cost of work performed.
BCWS = budgeted cost of work scheduled.
CPI = cost performance index.
CTD = contract to date.
EVMS = earned value management system.
FY = fiscal year
SPI = schedule performance index.

High-Level Waste Facility

Milestone	Title	Due Date	Status
D-00A-20	Complete Construction of Structural Steel to 14' in HLW Facility	12/31/2010	Complete
D-00A-21	Complete Construction of Structural Steel to 37' in HLW Facility	12/31/2012	Complete
D-00A-02	HLW Facility Construction Substantially Complete	12/31/2030	On Schedule
D-00A-03	Start HLW Facility Cold Commissioning	6/30/2032	On Schedule
D-00A-04	HLW Facility Hot Commissioning Complete	12/31/2033	On Schedule

HLW = high-level waste

The High-Level Waste (HLW) Facility will receive the separated HLW concentrate from the Pretreatment (PT) Facility. This concentrate will be blended with glass formers, converted into molten glass in one of the two HLW melters, and then poured into cylindrical stainless steel canisters. After cooling, the canisters will be sealed and decontaminated before shipping to interim storage.

As of September 2012, the HLW Facility was 62 percent complete overall, with engineering design 89 percent complete, procurement 81 percent complete, construction 43 percent complete, and startup and commissioning 4 percent complete. Construction, procurement, and production engineering activities have been significantly slowed down, resulting in minimal change to the percent completion status since September 2012.

Currently, all activities are being performed in accordance with the fiscal year (FY) 2015/FY 2016 2-Year Work Plan. Efforts are focused on completing activities required to obtain full-production authorization by the U.S. Department of Energy (DOE), including developing longer-term work plans. Limited construction is continuing with the concrete placements, installation of support steel, and crane rails in the melter caves.

Engineering is focused on activities to support implementation of technical core team recommendations, performance of engineering studies and analysis to disposition design and operability review comments. Phase 1 of the HLW melter off-gas treatment process/process vessel vent engineering study, which is evaluating options for system changes to improve the design and operability, is ongoing. Hazard and accident analyses are ongoing to support the preliminary documented safety analysis (PDSA) update to align design and the safety basis.

Systems engineering continues to develop system design descriptions (SDD), and incorporate SDD requirements into a requirements management system to ensure that all requirements are verified at the completion of design.

Multiple high-efficiency particulate air (HEPA) filter media designs are planned to be tested to ensure the qualified filters support the needs for HLW, along with the Low-Activity Waste

(LAW) Facility, Analytical Laboratory (LAB), and the Balance of Facilities (BOF) (collectively known as LBL, including LBL facility services). Testing of the full-scale filter designs at Mississippi State University is ongoing. The third full-scale filter has been tested, showing positive and successful test results. Fabrication of the additional filters and testing continues.

The PDSA change package for radioactive liquid waste disposal (RLD) vessels 7 and 8 has been approved by DOE, allowing initiation of procurement of these vessels.

Significant Accomplishments during the Prior Three Months:

- Completed full-scale tests of three filters of the first HEPA filter design that showed positive results
- PDSA change package for RLD vessels 7 and 8 has been approved by DOE
- Issued the revised RLD system design description incorporating PDSA changes
- Issued the emergency turbine generator system (ETX) system design description
- Completed roof flashing at interface between the annex and the main facility, thereby rain-proofing the annex
- Approved Mississippi State University's NQA-1 quality assurance program for the HEPA filter testing

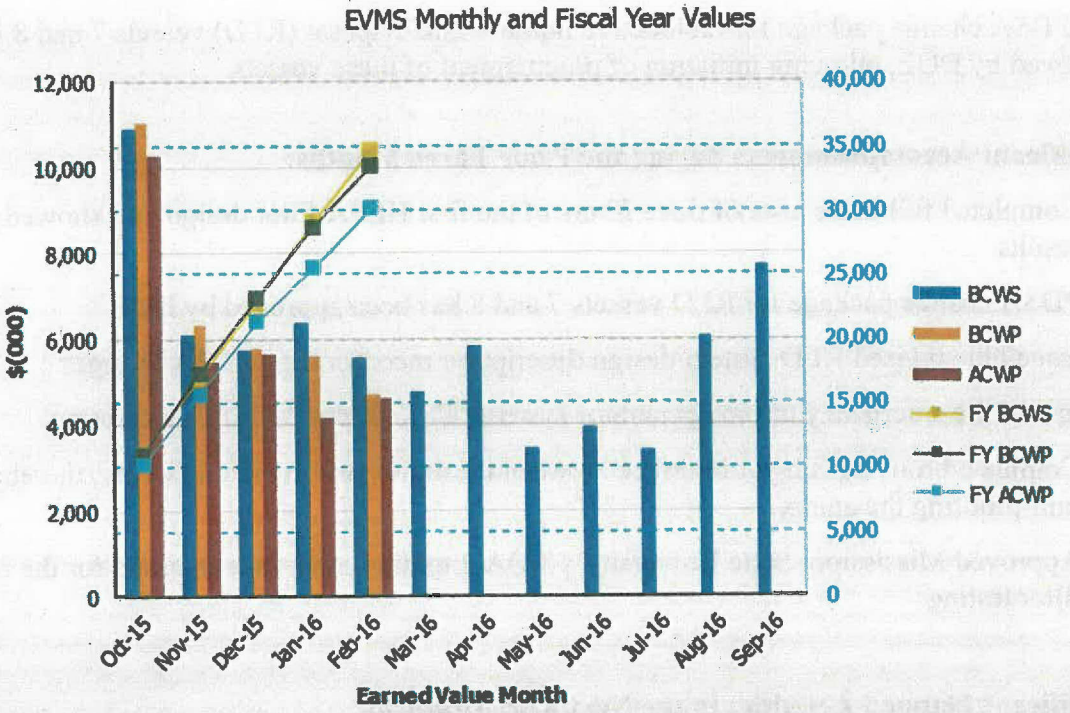
Significant Planned Activities in the Next Three Months:

- Continue full-scale HEPA filter testing to select and qualify additional filter(s) that will support the WTP ventilation and off-gas needs
- Issue Phase 1 of the HLW melter off-gas treatment process/process vessel vent engineering study
- Issue the radioactive waste handling system, decontamination handling system, and melter cave support handling system engineering studies
- Issue an engineering study detailing the potential addition of a melter assembly building/airlock and an additional import/export dock for waste handling
- Complete facility hazards analysis to support PDSA update
- Continue civil build-out of the HLW Facility

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data Data as of: February 2016

River Protection Project
High-Level Waste Facility (WBS 1.03)



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$10,905	$11,028	$10,257	1.01	1.08	$10,905	$11,028	$10,257	1.01	1.08
Nov 2015	$6,103	$6,326	$5,452	1.04	1.16	$17,008	$17,355	$15,708	1.02	1.10
Dec 2015	$5,737	$5,795	$5,634	1.01	1.03	$22,745	$23,150	$21,343	1.02	1.08
Jan 2016	$6,368	$5,591	$4,174	0.88	1.34	$29,113	$28,741	$25,517	0.99	1.13
Feb 2016	$5,551	$4,711	$4,631	0.85	1.02	$34,664	$33,453	$30,148	0.97	1.11
Mar 2016	$4,740									
Apr 2016	$5,817									
May 2016	$3,466									
Jun 2016	$3,948									
Jul 2016	$3,393									
Aug 2016	$6,076									
Sep 2016	$7,737									
PTD	$1,235,952	$1,233,718	$1,216,278	1.00	1.01					

ACWP	=	actual cost of work performed.	CTD	=	contract to date.
BCWP	=	budgeted cost of work performed.	EVMS	=	earned value management system.
BCWS	=	budgeted cost of work scheduled.	FY	=	fiscal year.
CPI	=	cost performance index.	SPI	=	schedule performance index.

Low-Activity Waste Facility

Milestone	Title	Due Date	Status
D-00A-07	LAW Facility Construction Substantially Complete	12/31/2020	On Schedule
D-00A-08	Start LAW Facility Cold Commissioning	12/31/2022	On Schedule
D-00A-09	LAW Facility Hot Commissioning Complete	12/31/2023	On Schedule

LAW = low-activity waste

The Low-Activity Waste (LAW) Facility will process concentrated low-activity waste which will be mixed with silica and other glass-forming materials. The mixture will be fed into the LAW's two melters, at a design capacity of 30 metric tons per day, and heated to 2,100 degrees Fahrenheit and vitrified into glass. The 300-ton melters are approximately 20 feet by 30 feet and 16 feet high. The glass mixture will then be poured into stainless steel containers, which are 4 feet in diameter, 7 feet tall and weigh more than 7 tons. These containers are anticipated to be disposed of on the Hanford Site in the Integrated Disposal Facility. As of February 2016, the LAW Facility was 53 percent complete overall, with engineering design 73 percent complete, procurement 70 percent complete, construction 77 percent complete, and startup and commissioning 5 percent complete.

Significant Accomplishments during the Prior Three Months:

- Installed 580 linear feet of process piping
- Installed 4,030 linear feet of conduit and pulled 42,080 linear feet of cable
- Installed 394 process area penetration seals
- Received the thermal catalytic oxidizer (TCO) and ammonia dilution skid (ADS)
- Melter lid 1 was successfully flipped
- Completed installation of Wet Electrostatic Precipitator (WESP) electrode assemblies in one vessel
- Completed TCO and ADS functional test
- Completed subcontractor work scope in the annex

Significant Planned Activities in the Next Three Months:

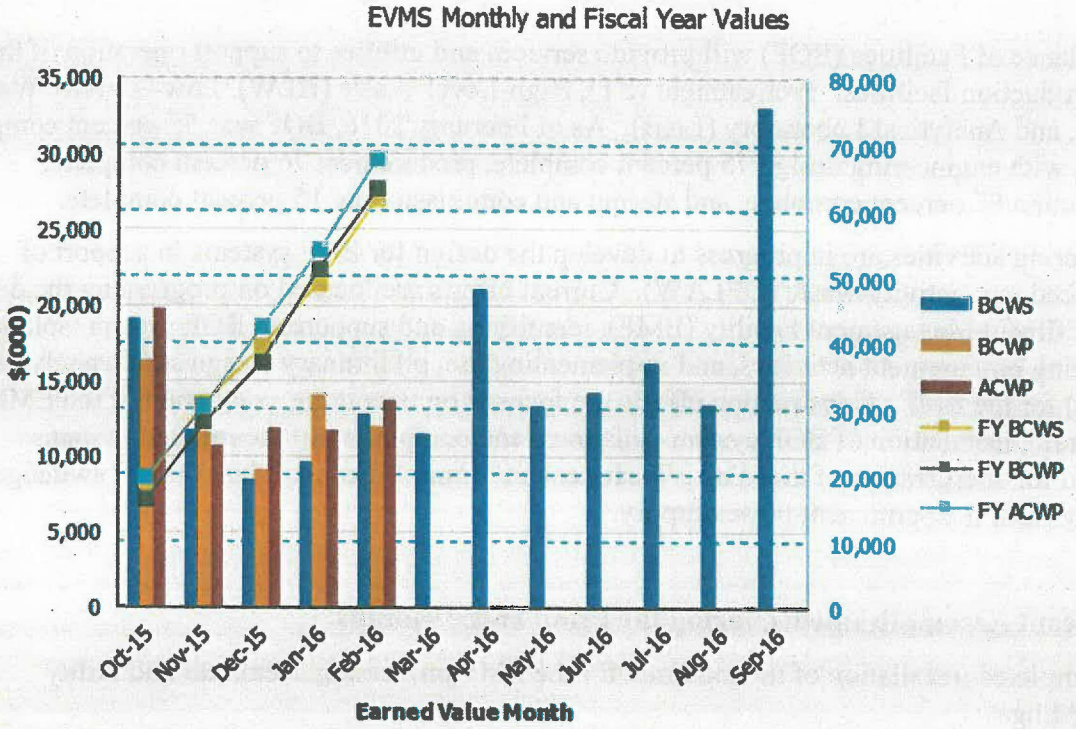
- Assemble and install WESP internals in second vessel
- Place second melter lid castable refractor
- Complete Documented Safety Analysis (DSA) Chapter 3.3, "Hazards Analysis"

- Stage the TCO and ammonia dilution skid (ADS) on greater than the 48 foot (+48′) elevation
- Complete the radiographic testing on the caustic scrubber
- Continue the re-baseline review process.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data Data as of: February 2016

River Protection Project
Low-Activity Waste Facility (WBS 1.02)



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$19,131	$16,406	$19,702	0.86	0.83	$19,131	$16,406	$19,702	0.86	0.83
Nov 2015	$11,764	$11,637	$10,735	0.99	1.08	$30,896	$28,043	$30,436	0.91	0.92
Dec 2015	$8,520	$9,132	$11,880	1.07	0.77	$39,416	$37,175	$42,316	0.94	0.88
Jan 2016	$9,694	$14,071	$11,790	1.45	1.19	$49,110	$51,245	$54,105	1.04	0.95
Feb 2016	$12,760	$12,055	$13,698	0.94	0.88	$61,870	$63,300	$67,804	1.02	0.93
Mar 2016	$11,541									
Apr 2016	$21,064									
May 2016	$13,326									
Jun 2016	$14,247									
Jul 2016	$16,272									
Aug 2016	$13,520									
Sep 2016	$33,098									
PTD	$1,280,069	$1,271,556	$1,269,293	0.99	1.00					

ACWP	=	actual cost of work performed.	CTD	=	contract to date.
BCWP	=	budgeted cost of work performed.	EVMS	=	earned value management system.
BCWS	=	budgeted cost of work scheduled.	FY	=	fiscal year
CPI	=	cost performance index.	SPI	=	schedule performance index.

Balance of Facilities

Milestone	Title	Due Date	Status
D-00A-12	Steam Plant Construction Complete	12/31/2012	Complete

The Balance of Facilities (BOF) will provide services and utilities to support operation of the main production facilities: Pretreatment (PT), High-Level Waste (HLW), Low-Activity Waste (LAW), and Analytical Laboratory (LAB). As of February 2016, BOF was 55 percent complete overall, with engineering design 75 percent complete, procurement 76 percent complete, construction 82 percent complete, and startup and commissioning 15 percent complete.

Engineering activities are in progress to develop the design for BOF systems in support of direct-feed low-activity-waste (DFLAW). Current efforts are focused on progressing the design of the Effluent Management Facility (EMF), identifying and supporting BOF system isolations, supporting procurement activities, and implementing the preliminary design safety analysis (PDSA) for the EMF. Construction efforts are focused on upcoming excavation of the EMF low point drain, installation of BOF system isolations, and completion of the remaining items required for energization of the Waste Treatment and Immobilization Plant (WTP) switchgear building from the permanent power supply.

Significant Accomplishments during the Prior Three Months:

- Completed installation of the mud mat for the EMF processing, electrical and utility buildings
- Continued installing communications in the switchgear buildings and nonradioactive liquid waste disposal (NLD)
- Continued installing the battery monitoring system in the switchgear buildings
- Issued Material Requisition Purchase (MRP) order for the rotary screw compressor
- Continued excavation and drilling activities to install cathodic protection system upgrades and started anode installation and backfill
- The DOE Office of River Protection (ORP) approved the PDSA for EMF
- Completed Fire Service Water FSW-B-02 system turnover

Significant Planned Activities in the Next Three Months:

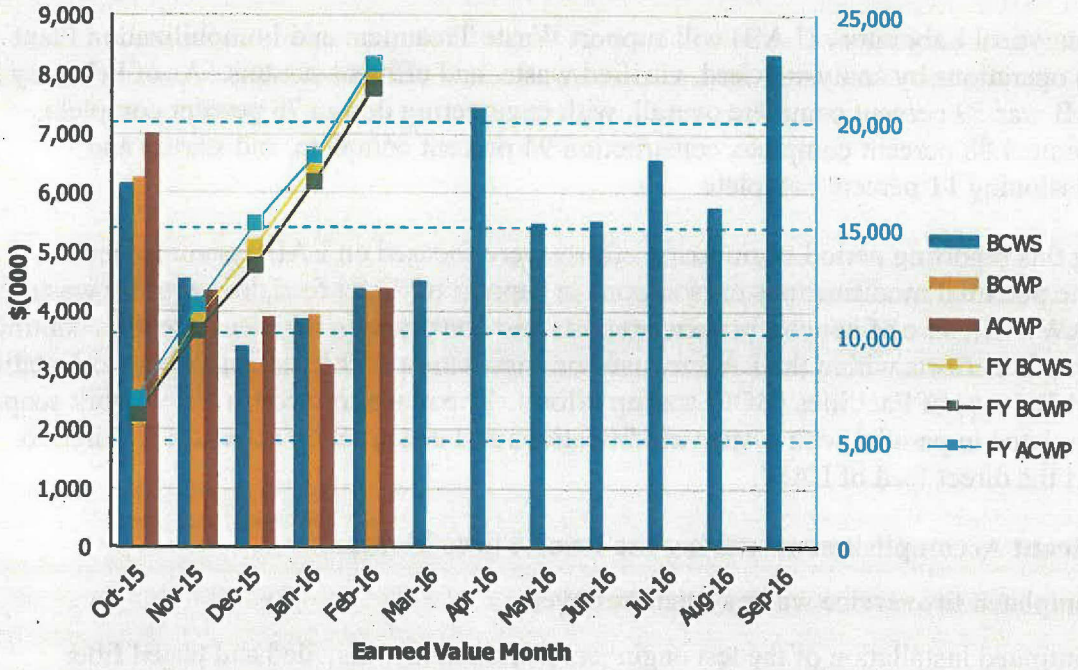
- Award subcontract for soldier piles of EMF low point drain
- Complete site energization from permanent power supply
- Submit permit package for EMF secondary containment
- Perform 90 percent design review of BOF programmable protection system (PPJ)

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data Data as of: February 2016

River Protection Project
Balance of Facilities (WBS 1.05)

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$6,160	$6,249	$7,006	1.01	0.89	$6,160	$6,249	$7,006	1.01	0.89
Nov 2015	$4,555	$3,913	$4,344	0.86	0.90	$10,715	$10,162	$11,350	0.95	0.90
Dec 2015	$3,400	$3,134	$3,917	0.92	0.80	$14,115	$13,296	$15,267	0.94	0.87
Jan 2016	$3,874	$3,917	$3,108	1.01	1.26	$17,989	$17,214	$18,375	0.96	0.94
Feb 2016	$4,367	$4,344	$4,357	0.99	1.00	$22,356	$21,557	$22,732	0.96	0.95
Mar 2016	$4,492									
Apr 2016	$7,452									
May 2016	$5,468									
Jun 2016	$5,515									
Jul 2016	$6,561									
Aug 2016	$5,762									
Sep 2016	$8,363									
PTD	$451,851	$446,759	$446,355	0.99	1.00					

ACWP = actual cost of work performed.
BCWP = budgeted cost of work performed.
BCWS = budgeted cost of work scheduled.
CPI = cost performance index.
CTD = contract to date.
EVMS = earned value management system.
FY = fiscal year
SPI = schedule performance index

Analytical Laboratory

Milestone	Title	Due Date	Status
D-00A-05	LAB Construction Substantially Complete	12/31/2012	Complete

LAB = analytical laboratory

The Analytical Laboratory (LAB) will support Waste Treatment and Immobilization Plant (WTP) operations by analyzing feed, vitrified waste, and effluent streams. As of February 2016, the LAB was 59 percent complete overall, with engineering design 76 percent complete, procurement 88 percent complete, construction 94 percent complete, and startup and commissioning 11 percent complete.

During this reporting period engineering efforts were focused on LAB system reviews to evaluate potential modifications or isolations in support of direct feed, low-activity waste (DFLAW). Closure of nonconformance reports and construction deficiency reports continued. Construction efforts within the LAB focused on installation of the test engineers work station to support Balance of Facilities (BOF) startup efforts. The remaining construction work scope will be completed in parallel with system modifications and construction activities required to support the direct feed of LAW.

Significant Accomplishments during the Prior Three Months:

- Completed fire service water system turnover
- Continued installation of the test engineers workstation – installed and tested fiber
- Continued development of procedures for the WTP analytical methods development process.

Significant Planned Activities in the Next Three Months:

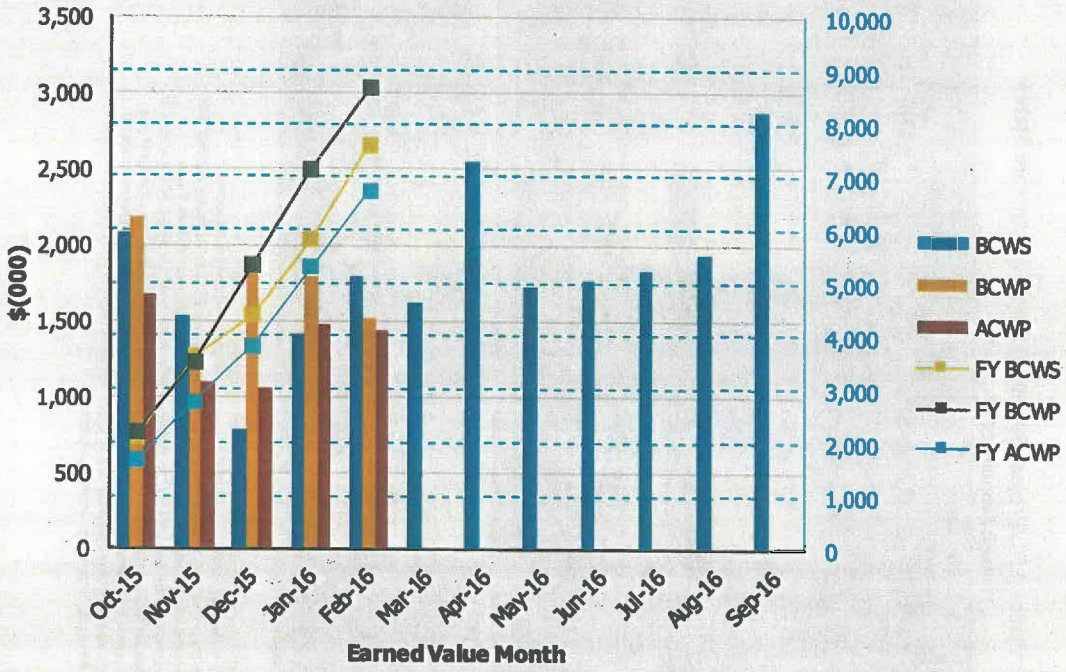
- Complete test engineers work station
- Initiate component level testing of select LAB systems
- Complete LAB system walk downs in support of DFLAW modifications.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data Data as of: February 2016

River Protection Project
Analytical Laboratory (WBS 1.06)

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$2,083	$2,188	$1,674	1.05	1.31	$2,083	$2,188	$1,674	1.05	1.31
Nov 2015	$1,528	$1,324	$1,093	0.87	1.21	$3,611	$3,513	$2,768	0.97	1.27
Dec 2015	$789	$1,844	$1,060	2.34	1.74	$4,399	$5,356	$3,827	1.22	1.40
Jan 2016	$1,415	$1,797	$1,472	1.27	1.22	$5,815	$7,153	$5,299	1.23	1.35
Feb 2016	$1,786	$1,511	$1,438	0.85	1.05	$7,601	$8,665	$6,738	1.14	1.29
Mar 2016	$1,628									
Apr 2016	$2,555									
May 2016	$1,732									
Jun 2016	$1,765									
Jul 2016	$1,826									
Aug 2016	$1,933									
Sep 2016	$2,880									
PTD	$320,166	$319,583	$315,086	1.00	1.01					

ACWP = actual cost of work performed.
BCWP = budgeted cost of work performed.
BCWS = budgeted cost of work scheduled.
CPI = cost performance index.
CTD = contract to date.
EVMS = earned value management system.
FY = fiscal year
SPI = schedule performance index.

Waste Treatment Plant Project Percent Complete Status (Table)

Waste Treatment Plant Project - (LBL/Project Services) Percent Complete Status

Through February 2016

(Dollars - Millions)	Overall Facility Percent Complete Unallocated Dollars			Design/Engineering Unallocated Dollars			Procurement Unallocated Dollars			Construction Unallocated Dollars			Startup & Plant Operations Unallocated Dollars			Project Management & Shared Services Unallocated Dollars		
Facilities	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	Com
Low-Activity Waste	2,272.0	1,196.6	53%	531.2	387.3	73%	372.2	261.3	70%	658.1	507.6	77%	706.6	36.3	5%	4.0	4.0	10
Balance of Facilities	755.7	419.0	55%	149.8	112.7	75%	71.6	54.5	76%	253.8	208.4	82%	280.1	43.0	15%	0.5	0.5	10
Analytical Lab	530.5	311.6	59%	106.1	81.0	76%	65.4	57.4	88%	160.7	151.1	94%	197.8	21.7	11%	0.5	0.5	10
LBL Facility Services	605.4	90.8	15%	0.0	0.0	0%	53.4	14.0	26%	128.9	16.6	13%	264.5	29.4	11%	158.6	30.82	19
Total LBL	4,163.6	2,018.0	48%	787.0	581.0	74%	562.6	387.2	69%	1,201.4	883.7	74%	1,449.1	130.4	9%	163.6	35.8	2
Direct Feed LAW	371.3	32.4	9%	79.8	26.2	33%	57.00	0.61	1%	226.1	3.6	2%	0.0	0.0	0%	9.0	1.96	2
Project Services	368.5	271.5	74%	53.3	37.5	70%	34.9	24.9	71%	70.4	60.6	86%	1.7	1.7	100%	208.2	146.7	7
Total DFLAW & PS	740.3	303.8	41%	133.0	63.7	48%	91.9	25.5	28%	296.5	64.2	22%	1.7	1.7	100%	217.1	148.7	6
Total LBL, DFLAW & Project Services	4,903.9	2,321.8	47%	920.1	644.7	70%	654.5	412.7	63%	1,497.8	947.9	63%	1,450.8	132.1	9%	380.7	184.5	4
PT/HLW/SS Percent Complete Status Frozen as of September 2012 (due to project rebaselining efforts)																		
High-Level Waste	1,478.6	922.1	62%	364.4	325.2	89%	433.9	349.4	81%	561.1	243.2	43%	119.2	4.4	4%	n/a	n/a	n
Pretreatment	2,517.3	1,410.5	56%	761.7	645.8	85%	679.9	380.4	56%	890.0	378.6	43%	185.8	5.6	3%	n/a	n/a	n
Shared Services	4,726.9	3,632.6	77%	1,047.0	977.9	93%	451.7	395.0	87%	1,436.5	1,143.0	80%	453.5	133.2	29%	1,338.1	983.5	7
Total HLW/PT/SS	8,722.8	5,965.2	68%	2,173.1	1,948.9	90%	1,565.5	1,124.8	72%	2,887.6	1,764.8	61%	758.5	143.2	19%	1,338.1	983.5	7
Undistributed Budget	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n
Total WTP	13,626.7	8,287.0	61%	3,093.2	2,593.6	84%	2,220.0	1,537.5	69%	4,385.4	2,712.7	62%	2,209.3	275.3	12%	1,718.8	1,168.0	6

Source: Preliminary WTP Contract Performance Report - Format 1, Data for February 2016

Note: In September 2012, the LBL Replan was incorporated into the project OTB baseline resulting in increases/decreases to the LBL facility budgets, which correspondingly increased/decreased the facility/function to-date percent complete values. In October 2012, the PT/HLW/SS Interim Work Plan was incorporated into the project OTB baseline resulting in decreases to the PT/HLW/SS facility budgets, this was due to a work scope shift from the Distributed budget to UB. Percent Complete Values shown for PT, HLW and SS have been frozen with the September 2012 values due to the Interim Work Plan and budgets being moved into UB. UB value for the project for PT/HLW/SS is $2,014M. The percent complete values for the Total WTP are the current total LBL BCWP added to the frozen HLW/PT/SS BCWP values. In March 2014, Project Controls and Project Management work scope was moved out of Shared Services control accounts into the facilities with new control accounts being set up in the facilities. These will now be seen under Project Management/Shared Services by facility. The Shared Services PMB value has not been changed to reflect this change due to the freeze on HLW/PT and SS and the budgets remaining in UB. October 2014 data reflects the incorporation of Direct Feed LAW and the split of Shared Services into LBL Facility Services and Project Services. July 2015 LBL percent complete data is a total of LAW-BOF-LAB and LBL Facility Services. The Project Services Allocation account (zPSA), as shown on the CPR Format 1, is not added to LBL for percent complete purposes.